Multiplexing RTP and RTCP on a Single Port

Colin Perkins
draft-ietf-avt-rtp-and-rtcp-mux-01.txt
Talk Outline

• Review of the draft
  – Why, how, and when to multiplex RTP and RTCP on a single port?
• Discussion
• Future directions
Why and How to Multiplex RTP and RTCP?

• RTP and RTCP flows typically use separate UDP ports
  + Simple, clean, and efficient implementation
  + Allows 3rd party RTCP only monitors for multicast
    – Wasteful of ports
    – Complicates NAT traversal, hindering deployment

• Multiplexing RTP and RTCP on a single port is possible if care taken with payload type assignments
  – Recommend payload types in the range 64–95 be avoided
    Initial segment of RTP header; 7 bit payload type; values 0...35 and 96...127 usually used
    Initial segment of RTCP header; 8 bit packet type; values 192, 193, 200...208 used
  – Multiplexing may disrupt links that assume full RTP header compression
Multiplexing RTP and RTCP: Unicast

• Recommend that RTP and RTCP multiplexing on a single port be allowed for unicast sessions

• Signal in SDP offer using `a=rtcp`: with same port as `m=` line:

```plaintext
v=0
o=csp 1153134164 1153134164 IN IP4 130.209.243.131
s=-
c=IN IP4 130.209.243.131
t=1153134164 1153137764
m=audio 49170 RTP/AVP 97
a=rtpmap:97 iLBC/8000
a=rtcp:49170
```

• SDP answer MUST contain `a=rtcp`: with matching port
  - Fall back to usual RTCP port-pair rules if not
    • Open issue: “MUST” or “SHOULD” fallback?
    • End points should be robust to unexpected RTCP, even if they don’t process it
  - With SIP forking, some answers may support multiplexing, others not
Multiplexing RTP and RTCP: Multicast

• Multiplexing disallowed for ASM sessions
  – NAT traversal issues less severe
  – Benefits of separate port for RTCP greater
    • 3rd party reception quality monitors

• Multiplexing allowed for SSM sessions
  – RTCP-only 3rd party reception quality monitors not possible with SSM
  – Signal using `a=rtcp:` attribute, as for unicast
Discussion

• Is allowing RTP and RTCP multiplexing a good idea? No!
  – It breaks the RTP architecture
    • There were good reasons why RTP and RTCP used separate ports
  – It cannot be made completely backwards compatible
    • Might fail with proxies that change the RTP port but don’t support a=rtcp:
    • Might have undesirable interactions with SIP forking
    • Might be better to use a new attribute, rather than a=rtcp:
    • Etc... there are unavoidable issues

• Might we want to allow it anyway?
  – Better to have RTCP multiplexed with RTP, than no RTCP
    • Many reasons why RTCP thought difficult; eliminates NAT traversal excuse
  – An on-path control channel, logically separate to the media, is necessary
    • Putting control messages in RTP header extensions or shims is a mistake
    • Multiplexed RTCP is one way of getting such an on-path control channel, running another protocol on the same port is another (c.f. STUN)
  – What is the consensus of the working group?
Future Directions

• If the group believes this work should proceed:
  – Relatively minor open issues with the draft
  – Can submit -02 immediately after the meeting, with a working group last call soon after

• If not, do we want to document the issues in an informational RFC to supplement RFC 3550?